

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

# PCT

To:  
MÜLLER, FOTTNER & STEINECKE  
P.O. Box 31 01 40  
D-80102 München  
GERMANY

Eingegangen / Received

19. April 2005

MÜLLER - FOTTNER - STEINECKE

Frist: 5.10.2005

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference MU03A02/P-WO	Date of mailing (day/month/year) 18/04/2005
International application No. PCT/EP2004/013858	International filing date (day/month/year) 06/12/2004
Applicant  MULTIMUNE GMBH	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

**When?** The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

**For more detailed instructions,** see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
  - ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

**4. Reminders**

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, within **20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  Anu Evers
--	-------------------------------------

## NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

### INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

#### What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

#### When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

#### Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

#### How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

#### What documents must/may accompany the amendments?

##### Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

## NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:  
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:  
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:  
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or  
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:  
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

### "Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

**It must be in the language in which the international application is to be published.**

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

### Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

### Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference MU03A02/P-WO	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, Item 5 below.	
International application No. PCT/EP2004/013858	International filing date (day/month/year) 06/12/2004	(Earliest) Priority Date (day/month/year) 05/12/2003
Applicant  MULTIMUNE GMBH		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the International search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☒ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☒ none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/013858

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N33/68 C07K16/44

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, MEDLINE, BIOSIS, EMBASE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 539 094 A (REED ET AL) 23 July 1996 (1996-07-23) the whole document	1-55 ✓
Y	TAKAYAMA S ET AL: "EXPRESSION AND LOCATION OF HSP70/HSC-BINDING ANTI-APOPTOTIC PROTEIN BAG-1 AND ITS VARIANTS IN NORMAL TISSUES AND TUMOR CELL LINES" CANCER RESEARCH, AMERICAN ASSOCIATION FOR CANCER RESEARCH, BALTIMORE, MD, US, vol. 58, no. 14, 15 July 1998 (1998-07-15), pages 3116-3131, XP000941973 ISSN: 0008-5472	1-55 ✓
X	the whole document ----- -/-	52,53



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&\* document member of the same patent family

Date of the actual completion of the international search

6 April 2005

Date of mailing of the international search report

18/04/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Moreno de Vega, C

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/013858

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	TAKAYAMA SHINICHI ET AL: "An evolutionarily conserved family of Hsp70/Hsc70 molecular chaperone regulators" JOURNAL OF BIOLOGICAL CHEMISTRY, AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, BALTIMORE, MD, US, vol. 274, no. 2, 8 January 1999 (1999-01-08), pages 781-786, XP002182051 ISSN: 0021-9258 the whole document	1-55 ✓
Y	ANTOKU K ET AL: "ISOLATION OF BCL-2 BINDING PROTEINS THAT EXHIBIT HOMOLOGY WITH BAG-1 AND SUPPRESSOR OF DEATH DOMAINS PROTEIN" BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, ACADEMIC PRESS, SAN DIEGO, CA, US, vol. 286, no. 5, 7 September 2001 (2001-09-07), pages 1003-1010, XP001071206 ISSN: 0006-291X the whole document	1-55 ✓
Y	BRIKNAROVA KLARA ET AL: "BAG4/SODD protein contains a short BAG domain" JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 277, no. 34, 23 August 2002 (2002-08-23), pages 31172-31178, XP001180035 ISSN: 0021-9258 the whole document	1-55 ✓
X	EICHHOLTZ-WIRTH H ET AL: "Altered signaling of TNFalpha-TNFR1 and SODD/BAG4 is responsible for radioresistance in human HT-R15 cells" ANTICANCER RESEARCH, vol. 22, no. 1A, January 2002 (2002-01), pages 235-240, XP009027254 ISSN: 0250-7005 the whole document	22,52-54 ✓
Y		1-55
Y	WO 00/14106 A (THE BURNHAM INSTITUTE) 16 March 2000 (2000-03-16)	1-55 ✓
X	the whole document	34-37, 52-54
	----- -/--	

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/013858

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	TOWNSEND. P. A. ET AL: "Bag-1 expression in human breast cancer: interrelationship between BAG-1 RNA, protein, HSC70 expression and clinico pathological data" THE JOURNAL OF PATHOLOGY, vol. 197, no. 1, May 2002 (2002-05), pages 51-59, XP009027243	1-55 ✓
X	the whole document -----	52,53

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP2004/013858

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: —  
because they relate to subject matter not required to be searched by this Authority, namely:  
Although claim 21 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.



## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/013858

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5539094	A	23-07-1996	AU 687952 B2	05-03-1998
			AU 1174295 A	29-05-1995
			CA 2176378 A1	18-05-1995
			EP 0742793 A1	20-11-1996
			JP 9509304 T	22-09-1997
			WO 9513292 A1	18-05-1995
			US 5686595 A	11-11-1997
			US 5650491 A	22-07-1997
			US 5641866 A	24-06-1997
<hr/>				
WO 0014106	A	16-03-2000	AU 774355 B2	24-06-2004
			AU 6038399 A	27-03-2000
			CA 2342027 A1	16-03-2000
			EP 1109824 A1	27-06-2001
			JP 2002524068 T	06-08-2002
			WO 0014106 A1	16-03-2000
<hr/>				

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

## PCT

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/EP2004/013858

International filing date (day/month/year)  
06.12.2004

Priority date (day/month/year)  
05.12.2003

International Patent Classification (IPC) or both national classification and IPC  
G01N33/68, C07K16/44

Applicant  
MULTIMMUNE GMBH

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the ISA:



European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

Authorized Officer

Moreno de Vega, C

Telephone No. +49 89 2399-7486



WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

10/581918  
AP3 Rec'd PCT/PTO 06 JUN 2008  
International application No.  
PCT/EP2004/013858

---

Box No. I Basis of the opinion

---

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2004/013858

---

**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

---

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 21, 48

because:

- ☒ the said international application, or the said claims Nos. 21 with respect to industrial applicability relate to the following subject matter which does not require an international preliminary examination (*specify*):

**see separate sheet**

- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☒ the claims, or said claims Nos. 48 are so inadequately supported by the description that no meaningful opinion could be formed.
- ☐ no international search report has been established for the whole application or for said claims Nos.
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
  - the written form ☐ has not been furnished
  - ☐ does not comply with the standard
  - the computer readable form ☐ has not been furnished
  - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2004/013858

---

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

---

1. Statement

Novelty (N)	Yes: Claims	1-21, 23-33, 38-51
	No: Claims	22, 34-37, 52-54
Inventive step (IS)	Yes: Claims	
	No: Claims	1-55
Industrial applicability (IA)	Yes: Claims	1-20, 22-55
	No: Claims	

2. Citations and explanations

**see separate sheet**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

PCT/EP2004/013858

**Re Item III****Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

Claim 21 relates to subject-matter considered by this Authority to be covered by the provisions of Rule 67.1(iv) PCT. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject-matter of this claim (Article 34(4)(a)(I) PCT).

**Re Item V****Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

- D1: TAKAYAMA S ET AL: "EXPRESSION AND LOCATION OF HSP70/HSC-BINDING ANTI-APOPTOTIC PROTEIN BAG-1 AND ITS VARIANTS IN NORMAL TISSUES AND TUMOR CELL LINES" CANCER RESEARCH, AMERICAN ASSOCIATION FOR CANCER RESEARCH, BALTIMORE, MD, US, vol. 58, no. 14, 15 July 1998 (1998-07-15), pages 3116-3131, XP000941973 ISSN: 0008-5472
- D2: ANTOKU K ET AL: "ISOLATION OF BCL-2 BINDING PROTEINS THAT EXHIBIT HOMOLOGY WITH BAG-1 AND SUPPRESSOR OF DEATH DOMAINS PROTEIN" BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, ACADEMIC PRESS, SAN DIEGO, CA, US, vol. 286, no. 5, 7 September 2001 (2001-09-07), pages 1003-1010, XP001071206 ISSN: 0006-291X
- D3: BRIKNAROVA KLARA ET AL: "BAG4/SODD protein contains a short BAG domain" JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 277, no. 34, 23 August 2002 (2002-08-23), pages 31172-31178, XP001180035 ISSN: 0021-9258
- D4: EICHHOLTZ-WIRTH H ET AL: "Altered signalling of TNFalpha-TNFR1 and SODD/BAG4 is responsible for radioresistance in human HT-R15 cells" ANTICANCER RESEARCH, vol. 22, no. 1A, January 2002 (2002-01), pages

235-240, XP009027254 ISSN: 0250-7005

D5: WO 00/14106 A (THE BURNHAM INSTITUTE) 16 March 2000 (2000-03-16)

D6: TOWNSEND. P. A. ET AL: "Bag-1 expression in human breast cancer: interrelationship between BAG-1 RNA, protein, HSC70 expression and clinico pathological data" THE JOURNAL OF PATHOLOGY, vol. 197, no. 1, May 2002 (2002-05), pages 51-59, XP00902724

2. Article 6 PCT

- 2.1 Claims 1-21 do not meet the requirements of Article 6 PCT in that they are not clear. Said claims refer to "bispecific molecules" defined only by their binding characteristics, without indicating any structural or sequence feature.
- 2.2 The wording of claim 26 is unclear, because as a consequence of the use of the word "or" it is not clear whether the use refers to the Bag protein in association with Hsp or to the Bag protein and fragments thereof. Furthermore, the description does not disclose any "agent mimicking membrane-bound Bag", against the requirements of Article 6 PCT.
- 2.3 The uses claimed in claims 26, 34 and 52 and claims dependent thereon are not sufficiently supported by the description. These claims refer to the use of several undefined compounds or agents for medical purposes, whereas the description does not provide any example or experiment of such uses and of the agents to be used as inhibitors of the association of membrane bound Hsp with a member of the anti-apoptotic Bag family as recited in claim 34.
- 2.4 Claim 48 refers to a large number of possible compounds, defined merely by a method for their identification. Support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT cannot be found, however, for the compounds claimed. In the present case, the claim so lacks support, and the application so lacks disclosure, that a meaningful examination over the claimed scope is impossible.

2.5 For the assessment of the present claim 21 on the question whether it is industrially applicable, no unified criteria exist in the PCT Contracting States. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a compound for the manufacture of a medicament for a new medical treatment.

3. Novelty

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 22, 34-37 and 52-54 is not new in the sense of Article 33(2) PCT.

Document D4 discloses (see especially pages 235, 239 and 240) the role of Bag4 in the radiation resistance of HT-R15 cells and the detection of tumour radiation-resistant cells using antibodies. This document appears to be novelty destroying for claims 22, 52-54.

Document D1 discloses the higher expression of the Hsp70 binding Bag-1 protein in several types of tumour tissues compared with normal tissues, and the detection of said expression with antibodies to Bag-1. This document appears to be novelty destroying for claims 52-53.

Document D6 (see especially pages 51-52) discloses the detection of the expression of the Bag-1 protein in tumour tissues and that the Hsc70 protein is a direct target of Bag-1. This document appears to be novelty destroying for claims 52-53.

The subject-matter of claims 34-37 and 52-53 is anticipated in D5, see pages 1-7 and claims.



4. Inventive step

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-55 does not involve an inventive step in the sense of Article 33(3) PCT.

Documents D2, D3 and D5 disclose the sequences of the Bag protein family and their interactions with the Hsp protein and the expression of said proteins in cancerous cells.

D5 is the most relevant prior art with respect to claims 1-18. D5 does not disclose any bispecific molecule to the disclosed Hsp and Bag proteins. The technical problem to be solved by said claims is the provision of a molecule binding to known sequences. Following the reasoning above (see paragraphs 2.1-2.3), the provision of bispecific molecules binding to already disclosed sequences can be routinely achieved by methods known in the field.

Claims 19-21, 23-33, 38-48, and 50-51 are not considered to be inventive, following the reasoning in the above paragraphs and in the light of the disclosures in the documents cited above. Said claims appear to be based on the finding that the Bag and Hsp proteins interact with each other and are expressed in tumour cells. This finding has already been taught in the cited prior art. Hence, the subject-matter of said claims appears to be based on an obvious speculation about the possible use of inhibitors of the association of the Bag and the Hsp proteins for the treatment of tumours.

With respect to claim 49, the person skilled in the art would include the known reactants for a method in a kit, without exerting an inventive activity.